



# THE UNIVERSITY *of* EDINBURGH

## Edinburgh Research Explorer

### Teaching urban sustainability

**Citation for published version:**

Cornell, H, Buckley, G, Kallin, H & Paul, T 2019, 'Teaching urban sustainability: A study abroad perspective', *Social Sciences*, vol. 8, no. 9, pp. 254-270. <https://doi.org/10.3390/socsci8090254>

**Digital Object Identifier (DOI):**

[10.3390/socsci8090254](https://doi.org/10.3390/socsci8090254)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Publisher's PDF, also known as Version of record

**Published In:**

*Social Sciences*

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



## Article

# Teaching Urban Sustainability: A Study Abroad Perspective

Geoffrey Buckley <sup>1,\*</sup>, Tawny Paul <sup>2</sup>, Hamish Kallin <sup>3</sup> and Harriet Cornell <sup>4</sup><sup>1</sup> Department of Geography, Ohio University, Athens, OH 45701, USA<sup>2</sup> Department of History, University of Exeter, Exeter EX4 4RJ, UK<sup>3</sup> School of Geosciences, University of Edinburgh, Edinburgh EH8 9XP, UK<sup>4</sup> School of Law, University of Edinburgh, Edinburgh EH8 9YL, UK

\* Correspondence: buckleyg@ohio.edu

Received: 14 July 2019; Accepted: 31 August 2019; Published: 5 September 2019



**Abstract:** Since 2011 more than 100 students from Ohio University have travelled to Edinburgh, Scotland, to study history, urban planning, and sustainability. In this paper we recount the genesis of this highly successful program, situate it in the broader literature on urban sustainability and study abroad, and then unpack its contents. We then consider how the adoption of green living practices combined with hands-on and experiential learning activities developed specifically for this program—including sustainability diaries, green spaces surveys, group research projects, and walking tours—complement content that is delivered in the classroom, and furthermore, how an emphasis on planning history and social equity contributes to student understanding of the forces that shape urban landscapes over time. In the end, we conclude that an urban sustainability theme conjoined with a location abroad presents educators with an opportunity to communicate critical sustainability principles that would be difficult to replicate if students did not leave their home university.

**Keywords:** Edinburgh; Scotland; experiential learning; green living; social equity; study abroad; urban history; urban planning; urban sustainability

## 1. Introduction

In summer 2011, faculty at Ohio University in Athens, Ohio, USA, and the University of Edinburgh in Scotland, UK, launched the Edinburgh: City and Environment study abroad program. The origins of the program date to 2008 when its primary architects first conceived the idea at the annual meeting of the European Association for Urban History in Lyons, France. These initial conversations eventually paved the way for a partnership between the two institutions, and subsequently, the creation of a successful interdisciplinary academic enterprise that has brought more than 100 American students to the University of Edinburgh to study history, urban planning, and sustainability.

The Edinburgh: City and Environment program was designed with two goals in mind: to meet the demands of a growing number of undergraduate students for a short-term study-abroad experience; and to develop a course of study focused on urban planning and sustainability that would appeal to geography majors and others interested in human-environment interactions. Although not formally articulated, we also hoped the program's emphasis on experiential learning and sustainability would have a ripple effect, inspiring transformative lifestyle changes among participants who might pass these behaviors on to students and others unable to travel abroad.

Given Ohio University's rural location, the opportunity to study urban planning in a European capital offers numerous advantages. In addition to experiencing everyday life in a bustling urban center, Ohio University students—most of whom grew up in automobile-dependent suburbs—were able almost immediately to identify key attributes that distinguish European cities from their American

counterparts. Most obvious at the outset were the existence of a comprehensive public transit system, a physical infrastructure that facilitates walking and biking, and an extensive network of public parks and gardens. With its dormitory-style accommodations and teaching spaces that promote energy saving, water conservation, and waste reduction, the University of Edinburgh is an ideal host for a program focused on urban sustainability. The University has a dedicated Department of Social Responsibility and Sustainability, and was judged Highly Commended in the Sustainable Institution of the Year category at the 2019 International Green Gown Awards. The award recognized Edinburgh's demonstrable actions in delivering a positive impact on society, including the University's commitments to becoming carbon neutral by 2014, and to fully divest themselves from fossil fuels by 2021 ([University of Edinburgh 2016](#)).

In this paper, we review the recent literature on study abroad, including the development of programs that have employed experiential learning techniques to address sustainability concerns. We then dissect the Edinburgh: City and Environment program, examining how various experiential learning activities adopted over the years support and reinforce content delivered via lectures and readings, and how an emphasis on planning history and social equity demonstrates how cities have dealt with sustainability challenges in the past and how urban landscapes evolve over time. Finally, we consider how students have responded to the program as well as the value of using a location abroad to communicate urban sustainability principles.

## 2. Study Abroad—Trends and Benefits

Study abroad programs have undergone numerous changes over the past several decades. One of the most significant relates to program duration. Once touted as “junior year study abroad,” semester-long and even shorter lengths of time are now increasingly the norm. According to [Coker et al. \(2018\)](#), 60 percent of study abroad experiences today last one to eight weeks. Although scholars debate the merits of short-term programs—with critics arguing they are little more than glorified tourism opportunities with course credits attached—a growing body of evidence suggests that all study abroad experiences, regardless of length, offer benefits to students ([Chieffo and Griffiths 2004](#); [Ingraham and Peterson 2004](#); [Williams 2005](#); [Cusick 2009](#); [Tarrant et al. 2014](#); [Coker et al. 2018](#)). For example, [Chieffo and Griffiths \(2004, p. 172\)](#) assert that short-term programs “are worthwhile educational endeavors that have significant self-perceived impacts on students’ intellectual and personal lives,” while [Tarrant et al. \(2014, p. 142\)](#) maintain they are “crucial for achieving broad and more egalitarian access to study abroad for U.S. undergraduates.”

As study abroad programs evolved during the 1970s and 1980s, so too did attitudes toward global environmental problems. A trend that has emerged in the past decade is the blending of study away experiences with sustainability education ([Cusick 2009](#)). [Cusick \(2009, p. 802\)](#) opines that universities are well positioned “to provide leadership on issues of sustainability,” and further, that study abroad “can nurture a sense of global stewardship, but only when the program curriculum and instructors are well informed of the issues that created unsustainable societies.” [Reilly et al. \(2016, p. 30\)](#) note that study abroad “provides an opportunity to explore sustainability beyond the classroom, offering a broader perspective of the triple bottom line.”

The rise of programs that focus exclusively on urban sustainability underscores the important role cities play in both consuming and conserving resources. [Bina et al. \(2016, p. 331\)](#) call urbanization among “the most significant global trends of the 21st century” and “a matter of priority” when it comes to sustainability initiatives. [Godfrey \(2010, p. 275\)](#) is emphatic on this point: “Clearly there can be no solutions to global ecological problems without addressing urban environmental issues as well.” While both sustainability and urban sustainability are difficult to define ([Mittler 1999](#); [Jabareen 2012](#); [Buckley 2014](#); [Li et al. 2018](#)), the concept, in Lorr’s words, clearly hints at “a future goal to be reached by regulating and monitoring urban human behavior to improve the environment while at the same time improving the economy and equity or social justice” ([Lorr 2012, p. 23](#)). In the estimation of

Li et al. (2018, p. 71), teaching urban sustainability to university students is an especially daunting task, one that requires “drastic changes to conventional pedagogical structures and processes.”

While traditional knowledge transfer methods may be useful, experiential education, including “action-oriented experiences that encourage reflection, critical analysis, and synthesis” offers a particularly effective means by which to communicate urban sustainability principles (Peterson 2009; Guthrie and Jones 2012; Bell et al. 2016; Tarrant et al. 2014, pp. 145–46). Broadly speaking, recent studies indicate that combining location abroad with an academic focus on sustainability delivered by experiential means promotes global citizenship and ecologically conscious behaviors (Tarrant et al. 2014, 2015). Another strategy, solution-oriented sustainability learning (SOSL), shifts the emphasis from identifying problems to working out solutions, while also developing competencies that foster collaboration and problem-solving in the future (Wiek and Kay 2015).

While acknowledging the benefits of study abroad, we must also recognize the environmental costs. For starters, how can we justify traveling abroad in an era of climate change? The carbon footprint of airline travel alone should give us pause. Dvorak et al. (2011) maintain that the key lies in how the experience abroad is extended upon return to the home university: “Experiencing well-established public transit systems can be all a student needs to start a carpool, bike, or mass transit project on their campus, and in their home towns and cities” (p. 147). The suggestion here is that a successful study abroad program focused on sustainability should produce a positive ripple effect, one that influences the behaviors of students, and others unable to participate directly in the program (Cusick 2009). Dvorak et al. (2011) further maintain that designing “green” study abroad programs is, in fact, “a logical extension of sustainability efforts in higher education,” one that hews more closely to the ideals of both endeavors (pp. 144–45). Taking experiential learning into a new and innovative direction, Christiansen and Fischer (2010) discuss a study away program they developed which incorporates “green” practices into the students’ daily routine: “The ‘green’ aspects of the course included how we traveled within and between cities, where we stayed, what we ate, and, of course, readings, discussions, speakers, and site visits that explicitly focused on urban environmental sustainability” (p. 301). They found this design to be an especially engaging way to teach and learn about environmental sustainability.

### 3. Experiencing Edinburgh

Grounded in the “three E’s” (environment, economy, and equity—also known as, the triple bottom line), and the “three D’s” (density, diversity, and design), the Edinburgh: City and Environment program exposes students to the ecological benefits that accrue to cities that are more densely populated, offer a diversity of mixed commercial and residential land uses, and are designed around people instead of cars. They also learn that balancing environmental concerns with economic priorities is challenging; furthermore, that ensuring an equitable distribution of “goods,” such as parks and affordable housing, is difficult to achieve. Finally, students come to appreciate that many of the “sustainability” problems cities face today are not new and that a historical perspective is needed to understand the forces that created the urban landscape we see today—a point we return to later in this paper when we highlight two of the program’s modules: the development of the city’s New Town in the eighteenth century; and the demolition of a working-class neighborhood called Craigmillar.

Students enrolled in the program receive credit for two courses: GEOG 4550—History of Planning and GEOG 4560—The Just and Sustainable City. In 2013, it was decided that including a brief review of Scotland’s history and geography at the start of the program would provide valuable background that would contextualize the broader themes of the program. Students are then introduced to the organic layout of Edinburgh’s Old Town and the rectilinear design of its Georgian New Town, health and sanitary improvements, post-World War II planning schemes, community place-making efforts, and UNESCO World Heritage Site designation. They also attend lectures on historic preservation and authenticity, urban green space design and management, public health and place, and territorial stigmatization and gentrification. Lectures and discussions of class readings typically take place in the

mornings and serve to “theoretically ground” the experiential learning activities that are scheduled for the afternoons. These activities build on ideas presented in class and foster relationships with others and the urban environment, culminating in writing assignments and presentations that require observation, reflection, and analysis on the part of students. Rather than view learning as something passive that is “done to you” our approach actively involves students as “co-creators” in the learning process. According to [Peterson \(2009, p. 543\)](#), research indicates “that critical reflection and analysis through discussion and writing assignments can secure a stronger commitment to and belief in the student’s ability to make a difference in the world,” a highly desirable outcome given the sustainability “mission” of the program.

Upon establishing the program, we decided it was absolutely imperative that students not just learn about sustainability but that they live more sustainably. Thus, following [Christiansen and Fischer \(2010\)](#), we sought to “green” our program from the outset. First, we secure student accommodation within walking distance of the University, in close proximity to amenities, such as grocery stores, pharmacies, restaurants, cafés, and bus stops. Second, Ohio University funds the purchase of student bus passes to ensure that travel by car is unnecessary. Third, we introduce students to the city’s various public space amenities and promote their use. Finally, we embed these values in the course curriculum, including through the design of course assignments. To encourage the acceptance of behaviors that promote healthy active lifestyles, reduce energy consumption and carbon production, and generate less waste, students complete two assignments that sharpen their observational skills, allowing them to reflect on their personal habits, and to incorporate feedback from peers and faculty. The first requires them to maintain a personal record of the sustainability practices and strategies they observe as they explore the city. For example, how does Edinburgh compare to the city they are most familiar with in the U.S.? What practices would they most like to see “exported” when the program concludes? What obstacles stand in the way of Edinburgh becoming a more sustainable city?

The second assignment sends students to several different parks in Edinburgh. Working in groups, they compare the parks in terms of size and principal features. Then they explore each green space thoroughly, describing its users, evaluating its condition, and cataloging its amenities. For example, is the signage adequate? Are rest room facilities and benches available? Is there playground equipment for young children? Is the park accessible by car and bus? Are there accommodations for disabled persons? Students are given two weeks to complete both assignments and encouraged to illustrate their diaries and surveys with images from their site visits. Frequent feedback from peers and faculty during the course of the two weeks closes the feedback loop, assuring students they are on the right track and allowing them to incorporate comments from class sessions. This model of equitable learning, where students partner with faculty when it comes to assessment through co-designing questions and criteria that then receive active feedback, has been shown to improve learning outcomes and overall student experiences ([Boud and Dochy 2010](#)).

This pedagogical approach also underpins the course project. This assessed piece of work is a “Biography of Place” presentation, that is separate from the two assignments detailed above, and perhaps the most significant project students undertake during the five-week program. Early in the course, students are divided into small groups and presented with a list of neighborhoods and streets to choose from for their topic. This introduces an element of equity to the assessed presentation format. Their task is then to use archival sources—including maps, diaries, government reports, and contemporary newspaper accounts—and site visits to show how their “place” has changed over time. Including such a significant autonomous learning element as part of assessment design has been shown to improve learning outcomes overall ([Vandiver and Walsh 2010](#)). Students are also directed to incorporate the broader themes explained in class lectures and readings (for example, public health and sanitation), and they are introduced to archival data sets and other historical sources during class time, and on field trips to the university, city, and national libraries. Students consult periodically with faculty during assignment briefing sessions and “surgeries,” to enforce the co-design elements and maximize positive opportunities for feed-forward ([Hounsell et al. 2008](#); [Hounsell 2015](#)). At the end of



the term, a team of faculty scores the presentations and provides oral and written feedback to each group, alongside a final grade.

As Cusick (2009, p. 805) aptly puts it “a study abroad destination is the classroom and not the walls and desks of a local campus.” In the case of the Edinburgh: City and Environment program, our team of instructors has used a combination of activities and assignments to complement lecture material delivered in a more traditional classroom setting, to diversify and enhance the means by which students learn, and to get students “into the field.” In particular, journaling has been shown to be an effective way to extend learning outside the classroom, allowing students to reflect on their experiences and to integrate them with class work and readings (Stevens and Cooper 2009; Guthrie and Jones 2012). Meanwhile, working in teams builds confidence, and in the case of study abroad, helps students bond with one another, connect to their local environment, and participate more fully in the learning process (Peterson 2009; Sibley and Ostafichuk 2014; Wiek and Kay 2015).

Following Godfrey (2010), our program stresses the value of a historical perspective—one that reminds us that cities have long sought ways to solve their “sustainability” problems, and that in so doing, they have sometimes created new ones. In the following section we present two case studies that underscore the importance of knowing a city’s history while focusing on issues of social equity—arguably the most neglected and least understood of the “three E’s.”

#### 4. Sustainability in History

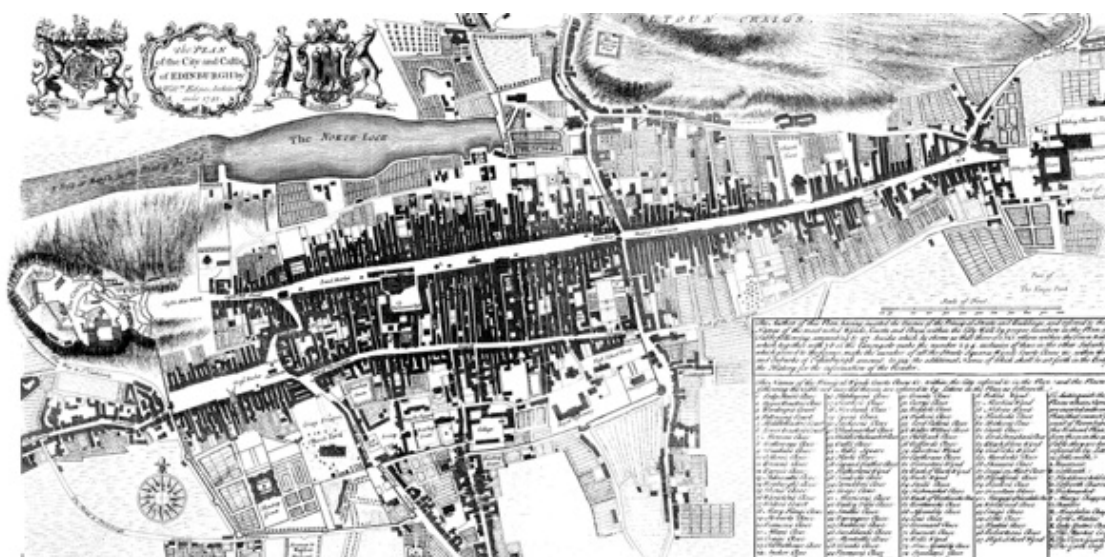
Sustainability is a modern term used increasingly in recent years to help us understand how cities balance concerns of environment, economy, and equity. But sustainability as a concept has a much longer history—one that reaches hundreds of years into the past. Cities are by definition spaces of constant change, and making improvements and planning for sustainability is part of how urban residents think about their environment and plan for the future. Glaeser (2005) argues that cities constantly re-invent themselves, and that long-term urban success is the result of a city’s ability to successfully respond to challenges and exogenous shocks. In developing the Edinburgh: City and Environment program, one of our goals was to place the concept of sustainability in the *longue durée*—to make clear that planning for sustainability is not new, and to invite students to consider not only how notions of sustainability have changed over time, but how the conceptual language we use to discuss it has also changed. As an experiential learning lab, Edinburgh offers a space for students to witness firsthand the challenges that the city has faced over time. Hands-on experience is combined with classroom instruction, as students observe and assess how the city has addressed social, economic, and environmental concerns. Attention to history through two specific case studies highlights some core points about sustainability outlined by Glaeser and others: first, that it is not a new concept and that cities constantly reinvent themselves; second, that cities remain successful by tackling challenges (though the nature of those challenges changes over time); third, that contemporary challenges are shaped by inheritance, and often the inheritance of previous efforts aimed to ensure sustainability; and finally, that issues of equity and power are central to evaluating success.

##### 4.1. Part I: The Old and New Towns of Edinburgh

Today, central Edinburgh is designated as a UNESCO world heritage site. It is notable for the juxtaposition of the medieval Old Town and the eighteenth-century New Town. The historic center appears frozen in time. But when we look more closely, we see that it is in fact the result of layers of urban planning, shaped by changing notions of sustainability and efforts to address several centuries’ worth of challenges. We challenge students to peel through these layers by synthesizing the academic with the experiential.

We begin the history of sustainability in the eighteenth century, and a walking-tour of the city offers an opportunity to teach the first lesson: that this issue is not new, and that cities survived historically by constantly re-inventing themselves and addressing challenges. In the eighteenth century, urban planners in Edinburgh thought about sustainability—especially as it applied to the economy

and environment—using the word “improvement.” By the middle of the eighteenth century, many felt that improvement was needed urgently. In 1700, a visitor to the city would have noted Edinburgh’s small size and its crowded environment. A population of some 60,000 people was clustered into a city with a footprint measuring one square quarter mile. Without the ability to build out, the city built up, leading residents to live with a level of urban density that would shock most Americans today. This situation was shaped both by the landscape and by the city’s historic inheritance. Edinburgh was established on a hill for strategic reasons during the medieval period; development to the north was limited by the presence of a lake and to the west by steep granite cliffs. The main-street or “Royal Mile” ran down the spine of the hill. Three hundred narrow, tunnel-like streets known as closes or wynds ran perpendicularly down the sides of the hill. These narrow passageways were not only thoroughfares, but market spaces where butchers, fishmongers, and farmers sold their produce (Figure 1).

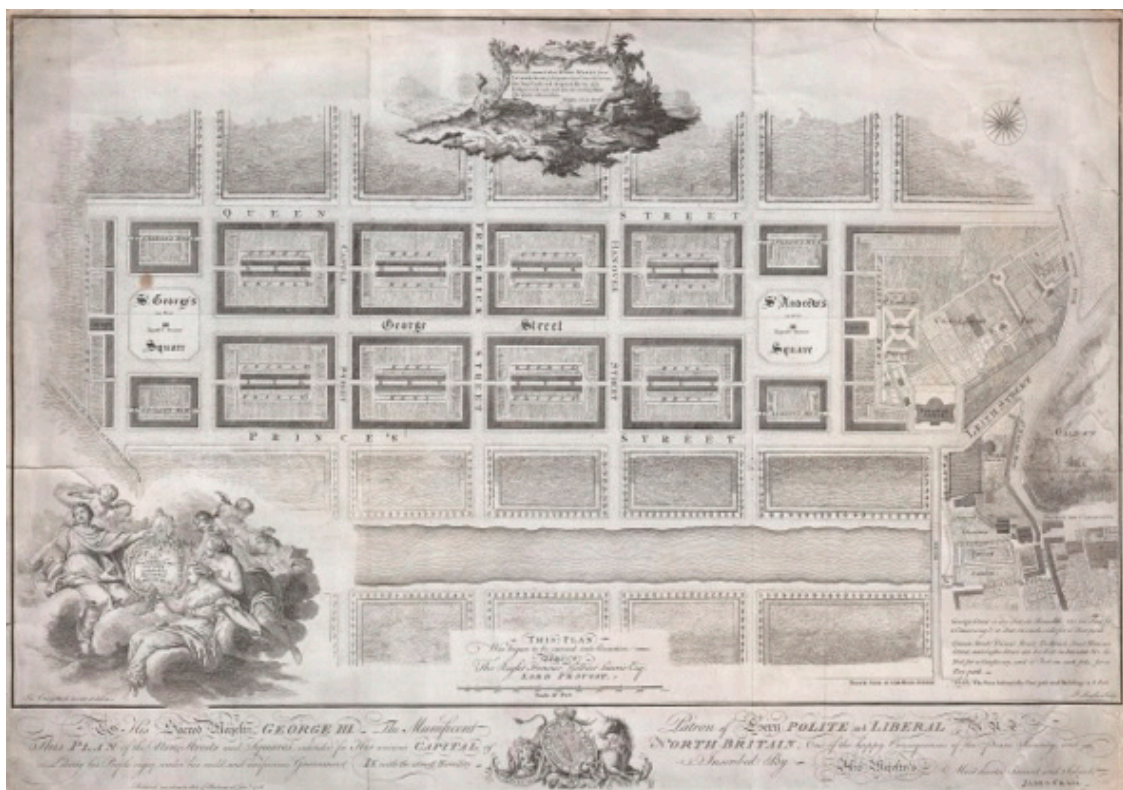


**Figure 1.** William Edgar, Plan of the City of Edinburgh, 1765. Source: National Library of Scotland. <https://maps.nls.uk/towns/rec/312>.

The physical structure of the city created problems related both to circulation and sanitation. Narrow streets became congested, and waste left by the market vendors annoyed local residents. Another problem was that the sewage and disposal system had not changed since medieval times. The waste created by thousands of people living in tall buildings had to be carried downstairs, where it was deposited in carts or dumped in the gutters. While contemporaries did not frame waste disposal problems in terms of modern understandings of public health, they did notice the unpleasant nature of city sanitation. Elite residents complained about the smells and sights they encountered on the streets, as well as the difficulties they experienced walking through urban thoroughfares contaminated with waste (Houston 1994).

Environmental conditions also created an identity problem for the city. During the eighteenth century, cities were judged by the quality of their environment and by the resources and institutions they provided (Sweet 2002). An urban renaissance was sweeping Britain, resulting in rebuilding and rejuvenation projects throughout the nation (Borsay 1989). As Scotland’s center of politics, administration, and justice, Edinburgh was an important town. It was also wealthy. While its population accounted for only a fraction of Scotland’s total population, it contributed one third of the nation’s tax revenue. But it was denigrated as a filthy, crowded, provincial town, and as the population steadily increased, it was outgrowing its physical space (McKean 2005). City planners tackled challenges of environment and identity by establishing a new urban development that stands as one of the earliest examples of suburbanization. In 1752, the city annexed land to the north and published a proposal to construct new public buildings and residential spaces. These improvements,

it was believed, would naturally transform Edinburgh into a cultural capital as well as a center of trade and commerce. Over the next 15 years, a bridge (North Bridge) was built over the lake to the north, and the markets were moved from their former homes in the narrow passageways of the Old Town to a new area under the bridge (a space which is now occupied by the city's central train station, Waverley). The New Town constituted a novel approach to urban development in Edinburgh, in that it planned a coherent layout for the entire new area, rather than incorporating building as it was needed (Figure 2). Broad, straight, open thoroughfares replaced narrow streets (Youngson 1966), ensuring the safety of pedestrians and improving circulation. Streets were paved and drainage improved. Attention to the environment included the provision of green spaces. Parks, gardens, and squares were integrated into the city's formal layout.



**Figure 2.** James Craig: Plan of the new streets and squares, intended for his ancient capital of North-Britain, 1768. Source: National Library of Scotland. <https://maps.nls.uk/towns/rec/1025>.

Edinburgh's responses to its environmental challenges and its approaches to sustainability can be taught through experiential learning, because the city's eighteenth-century spaces are so well preserved. Through walking tours of the Old Town, students feel what the medieval environment was like. They experience the crowded and dark nature of the closes and wynds, and they understand the eighteenth-century impetus to improve. Walking around the city, students can travel through layers of development. Standing on The Mound, a hill leading between the city's two halves, the Old Town hangs like a shadow. As we lead students to the eighteenth-century development, we experience how the streets become wider, and students notice the sweeping vistas (Figure 3). The houses become more uniform, and the windows become larger, creating more pleasant domestic spaces. Students notice the architectural unity of the buildings, and we think about the implications of building in a neo-classical style.





**Figure 3.** Dr. Tawny Paul, University of Exeter, leads Ohio University students on a tour of Edinburgh's Old and New Towns (Photo by G.L. Buckley, June 2015).

Walking tours are combined with classroom sessions that make use of documentary evidence. Looking at historical maps of the Old Town (Figure 1) and New Town Plan (Figure 2), accessible digitally through the National Library of Scotland, students observe how notions of sustainability were applied to the re-development of the city. By looking at maps, students can see how the building style of the New Town contributed not only to an improved environment, but to securing a sustainable political identity. After the Union of 1707, Scotland had ceased to be an independent country. Edinburgh was now a deposed capital and had lost its political importance. In 1745–1746, this problem was compounded by the second Jacobite Rebellion in Scotland, when Charles Edward Stuart attempted to regain the British throne for the Stuart dynasty. The rebellion, launched in the Scottish Highlands, was eventually defeated at the Battle of Culloden in 1746. But during those two years, Edinburgh had been captured. In the building of the New Town, therefore, city planners were keen to establish Edinburgh as a British city loyal to the Crown, and the notion of political sustainability was written into the fabric of the New Town, with street names designed to signal the city's identity as a capital of North Britain. Saint George's Square (named after the patron saint of England) was juxtaposed with Saint Andrew's Square (named after the patron saint of Scotland). The main thoroughfares were named Prince's Street and Queen Street.

The improvements made in Edinburgh by the building of the New Town were intended to ensure the city's sustainability, but history also teaches that we must be sensitive to whose interests improvements serve. The Edinburgh case demonstrates that the very framing of urban challenges and hazards can be shaped by relationships of power and class. To modern eyes, and from the perspective of those who advocated reforms, Edinburgh's Old Town was smelly and crowded. Yet the city environment was experienced in more complex ways by many of its residents. One of the challenges of studying sustainability is to avoid sanitized narratives of history that portray environments of the past as simply dirty and dark. The history of sensory experience shows that spaces which we might

label today as “smelly” or “crowded” had different meanings in the past (Jenner 2011). The study of history, therefore, highlights the need to apply the concept of equity to our study of sustainability, by considering how urban residents perceived their own environments. Concepts of equity and social justice demand that we be mindful of whose voices we listen to in both the past and the present.

For those who lived in eighteenth-century Edinburgh, the Old Town was more than a chaotic and smelly environment: it was a home. People created place out of space; they created meaning out of the built environment. Distinctive smell and sound environments shaped urban identities and communicated meanings. For example, because of occupational zoning, it was said that a blindfolded person in Edinburgh could tell which part of town they were in by the soundscape. The clinking of Hammermen’s tools was associated with the West Bow, while the cries of vendors selling merchandise would be associated with particular market areas. The smell of burning tallow would indicate proximity to Candlemaker Row. Although the noise must have been ferocious and smells strong, these sensory experiences were more than “noise pollution” or “stench.” They were forms of information that helped residents to know and navigate their city. They had emotional connotations. Smells considered foul today, such as burning fish oil, might have suggested comfort in an era when fish oil lamps lit most homes. Old Edinburgh, then, was not merely a dirty and inconvenient city. The urban environment was experienced differently by different kinds of people.

We teach about issues of equity and knowledge, by pairing a classroom exercise that involves reading the historical diaries of travelers who described the city, with experiential learning, by asking students to keep a sensory experience diary over a period of one week. Through this activity, they notice the complex nature of the sensory environment and all of its meanings. Though we live in a predominantly visual culture today, students are often surprised to notice that sounds and smells continue to communicate meaning, as they did in the past. Smell was not only a feature of air quality, but a form of useful information, and smell is not the same as stink.

Walking the city provides further evidence of issues of equity. Edinburgh’s eighteenth-century improvements had a knock-on effect in terms of the distribution of amenities and dis-amenities to urban residents, and we consider who stood to benefit and who stood to lose from the changes that were imposed to ensure sustainability. The building of the New Town is an early historical example of middle class flight from the inner city. As wealthier individuals fled to the New Town, the poor were left behind and the Old Town eventually became a slum. Furthermore, the public green spaces of the New Town were in fact not truly public, but were strictly off limits to non-residents (as they remain today), accessible only to local residents who paid to have a key. While walking around the city, students notice the social divisions built into the fabric of this early “modern” development, the separate staircases that were built for servants, and the carefully designed street spaces built for carriages. We peer over the fences into the gardens, and notice the amenities provided for those who could afford to flee the inner city.

#### *4.2. Part II: Walking through a Landscape That Doesn’t Yet Exist*

Not many visitors to Edinburgh are introduced to Craigmillar, an historically working class neighborhood on the southern edge of the city. Over a century-long period, the fate of this area seems to exemplify the “see-saw” of uneven development that Smith (1982) described so compellingly. Craigmillar urbanized rapidly in the 1930s, propelled by the construction of several large public housing estates built adjacent to labor-intensive industries. It reached a population of almost 25,000 in the mid-1960s (Richardson et al. 1975, p. 39), and despite a paucity of nearby services, locals made an internationally recognized effort to provide their own amenities (Crummy 1992). But despite these efforts, the area was caught in the crosshairs of underfunding from government and the almost complete disappearance of viable employment by the early 1980s. Entrenched poverty, coupled with mounting stigmatization and vilification, saw the population plummet. Statistics collated by the Scottish Government in the early 2000s showed this to be one of the most deprived wards in Scotland by multiple measures, right on the edge of the most affluent city (Kallin and Slater 2014). A dramatic

“regeneration” plan involved the complete demolition of two of the largest estates, but the holy grail of rising land values was hastily put to rest by the financial crisis. In the decade following 2008, the local authority courted social housing developers to keep the site moving, and in recent years the upswing in property values has added wind to the sails of this dramatically changed landscape.

The account above is necessarily sweeping in its generalizations, but it bespeaks a neighborhood that has changed beyond recognition multiple times. Our challenge with the Edinburgh: City and Environment program is to give students a sense of this story, but never in isolation. We do not try to explain the fate of Craigmillar (as popular discourse and policy so often does) by focusing on the neighborhood itself, as if the source of its troubles lie there alone. Rather, following [Massey \(1994\)](#), we try to reinforce the importance of seeing uneven development as always relational. Poverty must be explained in relation to wealth, powerlessness in relation to authority, stigma in relation to representations of the good life, and so on. This is not only an intellectual exercise in thinking beyond any given neighborhood—no landscape is local, as [Mitchell \(2008\)](#) would put it—but requires a combination of approaches, where knowledge is simultaneously emplaced and impossible to place.

Conducting a lecture and leading a walk allows us to get as close to this position as a single morning session will allow. We start in the classroom. A historical introduction to Craigmillar briefs the students on what they can no longer see. Key concepts include deindustrialization and gentrification, thinking closely about [Smith’s \(1979\)](#) idea of the rent gap, and how that logic was incorporated into UK housing policy ([Smith 2002](#)).<sup>1</sup> We also encourage the students to think about residualization, whereby the shrinking of the public housing stock isolated that which remained—economically, spatially, and politically ([Forrest and Murie 1988](#)). Finally, we introduce debt as a central concept, both in terms of a fiscal straitjacket that forecloses certain policy decisions at the level of the local authority, and as the mechanism through which structurally unaffordable housing becomes profitable. Students are often very open to discussing these topics: they know the pressures of rent, debt, and gentrification in their own cities, and the similarities are apparent even if the context is not.

Then we leave the classroom, and the walk tempers some of that conceptual similarity. The route is something of a “ghost tour” now, for so much of what we talk about has disappeared, or been replaced by neat rows of newly built properties. Taking the students through the neighborhood, and standing in the shadow of two of the city’s most deprived council estates, both of which are now gone, raises several issues of spatial justice, equitable development, and the seemingly intractable distance between idealized visions of good “place-making” and a right to stay put (Figure 4).

In their ambitious and controversial plan for Edinburgh’s post-war restructuring, [Abercrombie and Plumstead \(1949, p. 48\)](#) suggested that the coal pits in Craigmillar would “probably remain for such uses for a long time to come,” meaning a steady labor supply was required, and houses should be built nearby. They were wrong. Only nineteen years later, both of Craigmillar’s pits were permanently closed, victims of a clashing roadmap to the rational future, in which the National Coal Board put their investment into larger, deeper pits elsewhere (which would, in turn, be permanently closed by the mid-1980s). Skip forward half a century, and the ambitious plans for the new Craigmillar were predicated based on land values rising, and continuing to rise. They were also wrong, at least for a while. And in both instances, these visions of the future were unsustainable: the first tied prosperity to jobs that would soon disappear, while the second tied prosperity to land values that would soon crash (due to the very same forms of speculation that had been globally pushing up land values for the preceding decade).

Sustainability is a word that sometimes feels like it has run thin, evincing a “vague sense of goodwill” so easily co-opted ([Petrucci 2002, p. 103](#)). In contemporary policy parlance, a “sustainable”

<sup>1</sup> [McKee et al. \(2017\)](#) point out the importance of spatial nuance when talking about “UK housing policy,” for the Scottish Parliament has had devolved control of housing policy, since its reconstitution at the turn of the millennium. Despite this, the dominant ideals and policies in Scottish housing policy at the time when the Craigmillar regeneration project was formulated were virtually synonymous with policy across the rest of the UK.



community is often understood as one that can survive without state intervention (McIntyre and McKee 2012), and so the word is duplicitous, used to imply a better future, when the qualities of what makes that future better are decidedly ambiguous. But “sustainability” in this context becomes a truly challenging demand, for it requires a rethink of the way that places are planned for short-term economic benefit. It requires us to explore ways in which we might decouple the neighborhood from unstable flows of international capital, even while the trajectory of policy heads falteringly in the opposite direction.



**Figure 4.** Dr. Hamish Kallin, University of Edinburgh, discussing the history of Craigmillar with students enrolled in the Edinburgh: City and Environment program (Photo by G.L. Buckley, June 2017).

## 5. Student Response

In addition to expressing a high degree of satisfaction with the program in general, student evaluation data collected over the period 2011 to 2019 convey three key points. First, the experiential learning activities we have offered over the years have proved popular and effective.

Students are especially pleased to be able to “see” what they are studying. Second, Edinburgh’s sustainability practices—as revealed in the program evaluations, but also in the sustainability diaries, green spaces surveys, and sustainability visioning exercise on the final exam—capture the attention of our students. This is particularly true when it comes to public transportation, but it surfaces in other important ways as well. Third, studying sustainability as part of an “away” experience opens students’



eyes to new ideas and possibilities. Moreover, students—especially urban planning and sustainability majors—appear motivated to continue new behaviors upon returning to the US.

### 5.1. *Experiential Learning*

With respect to our walking tours and “hands-on” activities (e.g., sustainability diaries, green space surveys, and sensory experience diaries), students made it abundantly clear that these served as valuable complements to classroom learning and that they enjoyed “doing new things every day.” Several students mentioned the walking tours to Old Town, New Town, and Craigmillar, specifically. One student in 2011 wrote: “I really enjoyed the walking tours because it allowed me to see what we were learning about in class.” Another participant, this one from 2012, stated: “It was such a hands-on experience. It allowed me to see things we talked about visually and understand easier.” Being able to “see” what was being learned in the classroom was a familiar refrain repeated across all years. A student from 2014 remarked that the “on-the-ground experience” of field trips and outside-the-classroom activities “took the theory from class [e.g., rent gap and gentrification, suburbanization, and middle class flight] and made it a reality.” A student from 2016 opined that rather than being “lectured to” she “got to do more field work and experience things first hand.” These evaluations, which stretch across the years that the program has run, has meant that the format of teaching—with limited time in the classroom and assignments that require fieldwork—has remained remarkably consistent.

### 5.2. *Sustainability Practices*

Easily the most frequent comment we received across all years referred to Edinburgh’s bus system. Students agreed that the bus pass was “an excellent idea,” that buses were “convenient” and “very easy” to use, and that the passes were used often, sometimes several times a day. Even students who rarely if ever used public transportation at home were supportive of the system as this entry from a sustainability diary in 2019 indicates: “Growing up, I never used the bus to get anywhere. At home, I have to drive half an hour to get to the closest bus stop. This bus does not have many stops and is mainly used to get downtown. However, in Edinburgh, the bus system is efficient and easy to use.” One student evaluation from 2015 noted that the bus system was “great” and that her experience with “public transportation in general” was a “very valuable” part of her trip.

With respect to mobility, another student from 2015 remarked: “I fully experienced a well utilized and designed public transportation system and planning designed around walkable streets.” As the previous comment suggests, students not only notice the efficient bus, tram, and train system, they experience a built environment conducive to walking, and increasingly, biking. Designated bike lanes, bike counters, and the presence of bicycle commuters on city streets never fail to draw comparisons to cities in the US Midwest, where such infrastructure is less well developed (Figure 5). Students also take note of the advantages of mixed land-use zoning, the availability and varying quality of green spaces in the city, and the ever-present reminders on display at the residence halls where they live to reduce water and energy consumption and solid waste generation.

### 5.3. *Sustainability in Scotland and Beyond*

Students were effusive in their praise of a mode of learning that combined study abroad with an urban sustainability theme. According to one student in 2017: “I got to see how Edinburgh was making moves to be more sustainable and focus on the positives. Whereas at Ohio [University] I feel as if we would be focusing on the negatives.” Others note that it is “easy to study a city that you’re in” and that being abroad “makes you more motivated and interested.” The following testimonial from a geography major in 2015 supports this idea: “With our specific program being on urban planning, being in a host country was perfect. We were able to identify and apply our knowledge to the city, versus looking through a text-book/computer screen and imagining it. It was fascinating!” In a clear reference to equity, one participant in 2017 said that the many different neighborhoods we visited allowed them to “more fully understand how urban planning affected different residents of the city.”

Another member of the 2017 group stated: “Being in Scotland I experienced a different kind of planning while learning about more sustainable ways of thinking.”



**Figure 5.** Cyclists and pedestrians utilizing the Middle Meadows Walk. Note the designated cycle lane and bicycle counter (Photo by G.L. Buckley, June 2016).

Perhaps most encouragingly, program evaluations indicate that students will not soon forget what they learned while studying away. In reference to Edinburgh’s historically “evolving sustainability practices,” a student on the 2019 trip said she was “truly inspired by Scotland’s capital.” Another student from 2012 mentioned that, “The course material really changed my perspective,” adding later,

“I don’t think I will EVER look at a city the same way ever again.” Living a “greener lifestyle” also resonated with many of our students, with one person stating: “I will be able to be more critical and progressive about my surroundings and how to incorporate sustainability into my daily life and the life of others.” Another volunteered: “I was actually using what I learned and it felt great!”

## 6. Conclusions

As Tarrant et al. (2014, 2015) and Reilly et al. (2016) assert, combining a focus on sustainability with a location abroad, offers students a singular opportunity to learn and grow that cannot be replicated on their home campus. Our experience with the Edinburgh: City and Environment program supports this assertion. Walking tours, field activities, sustainability diaries, green spaces surveys, and other forms of experiential learning afford students the opportunity to learn about urban planning and sustainability outside the traditional classroom setting. And as Christiansen and Fischer (2010) discovered—and we validate—infusing study abroad with a “green living” component reinforces the concepts students learn while enrolled in the program, and hopefully, extends those behaviors indefinitely into the future. By incorporating a historical component and devoting special attention to issues of equity—an aspect of sustainability too often neglected in our opinion—we hope students come to appreciate that the urban landscape they are interacting with is more than a collection of buildings and streets. It is the product of myriad decisions made in the past. Understanding the forces that produce the landscapes we see today is the first step in a process that will allow us to plan for a future that is truly more sustainable and just.

**Author Contributions:** Conceptualization, G.B. and H.C.; writing—original draft preparation, G.B., T.P., and H.K.; writing—review and editing, G.B., T.P., and H.C.

**Funding:** This research received no external funding.

**Acknowledgments:** We would like to thank all the individuals who have contributed to the Edinburgh: City and Environment program since its inception in 2011, including: Aaron Allen, Megan Avellana, Andrew Bright, Tom Clemens, Lorinda Collins, Joe Curran, Kirsten Dabelko, Keely Davin, Emily Englehart, Eisa Esfanjary, Anna Feintuck, Anna Groundwater, Cliff Hague, Anna Hudson, Jane Jones, Cherita King, Lori Lammert, Rebecca Madgin, Catherine Marshall, Stephenie McGuckin, Bob Morris, Niamh Shortt, David Somervell, Laurence Tuccori, Marion Williams, and Charles W.J. Withers. We are especially indebted to Richard Rodger without whom the program would not have been possible.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

- Abercrombie, Patrick, and Derek Plumstead. 1949. *A Civic Survey and Plan for the City and Royal Burgh of Edinburgh*. Edinburgh: Oliver and Boyd.
- Bell, Heather L., Heather J. Gibson, Michael A. Tarrant, Lane G. Perry, III, and Lee Stoner. 2016. Transformational learning through study abroad: US students’ reflections on learning about sustainability in the South Pacific. *Leisure Studies* 35: 389–405. [\[CrossRef\]](#)
- Bina, Olivia, Luis Balula, Marta Varanda, and Josefine Fokdal. 2016. Urban studies and the challenge of embedding sustainability: A review of international master programmes. *Journal of Cleaner Production* 137: 330–46. [\[CrossRef\]](#)
- Borsay, Peter. 1989. *The English Urban Renaissance: Culture and Society in the Provincial Town, 1660–1770*. Oxford: Clarendon Press.
- Boud, David, and Filip Dochy. 2010. *Assessment 2020: Seven Propositions for Assessment Reform in Higher Education*. Sydney: Australian Learning and Teaching Council.
- Buckley, Geoffrey L. 2014. Urban Sustainability. In *Cities of North America: Contemporary Challenges in U.S. and Canadian Cities*. Edited by Lisa Benton-Short. Lanham: Rowman and Littlefield, pp. 377–403.
- Chieffo, Lisa, and Lesa Griffiths. 2004. Large-Scale Assessment of Student Attitudes after a short-Term Study Abroad Program. *Frontiers: The Interdisciplinary Journal of Study Abroad* 10: 165–77.



- Christiansen, Lars, and Nancy Fischer. 2010. Teaching Urban Sociology and Urban Sustainability on Two Feet, Two Wheels, and Three Cities: Our Experience Teaching Sustainable Cities in North America. *Teaching Sociology* 38: 301–13. [\[CrossRef\]](#)
- Coker, Jeffrey Scott, Evan Heiser, and Laura Taylor. 2018. Student Outcomes Associated with Short-term and Semester Study Abroad Programs. *Frontiers: The Interdisciplinary Journal of Study Abroad* 30: 92–105.
- Crummy, Helen. 1992. *Let the People Sing! A Story of Craigmillar*. Edinburgh: Craigmillar Communiversity Press.
- Cusick, John. 2009. Study abroad in support of education for sustainability: A New Zealand case study. *Environment, Development and Sustainability* 11: 801–13. [\[CrossRef\]](#)
- Dvorak, Andrea M. W., Lars D. Christiansen, Nancy L. Fischer, and Joseph B. Underhill. 2011. A Necessary Partnership: Study Abroad and Sustainability in Higher Education. *Frontiers: The Interdisciplinary Journal of Study Abroad* 21: 143–66.
- Forrest, Ray, and Alan Murie. 1988. *Selling the Welfare State: The Privatisation of Public Housing*. London: Routledge.
- Glaeser, Edward L. 2005. Reinventing Boston, 1630–2003. *Journal of Economic Geography* 5: 119–53. [\[CrossRef\]](#)
- Godfrey, Brian J. 2010. Urban Sustainability: Teaching at the Interface of Environmental and Urban Studies. *Ometeca XIV–XV*: 274–93.
- Guthrie, Kathy L., and Tamara Bertrand Jones. 2012. Teaching and Learning: Using Experiential Learning and Reflection for Leadership Education. *New Directions for Student Services* 140: 53–63. [\[CrossRef\]](#)
- Hounsell, Dai, Velda McCune, Jenny Hounsell, and Judith Litjens. 2008. The Quality of Guidance and Feedback to Students. *Higher Education Research and Development* 27: 55–67. [\[CrossRef\]](#)
- Hounsell, Dai. 2015. *Flipping Feedback*. Wise Assessment Briefing 12. Hong Kong: University of Hong Kong, Centre for the Enhancement of Teaching and Learning.
- Houston, Robert Allan. 1994. *Social Change in the Age of Enlightenment: Edinburgh, 1660–760*. Oxford: Clarendon.
- Ingraham, Edward C., and Debra L. Peterson. 2004. Assessing the Impact of Study Abroad on Student Learning at Michigan State University. *Frontiers: The Interdisciplinary Journal of Study Abroad* 10: 83–100.
- Jabareen, Yosef. 2012. Towards a Sustainability Education Framework: Challenges, Concepts and Strategies—The Contribution from Urban Planning Perspectives. *Sustainability* 4: 2247–69. [\[CrossRef\]](#)
- Jenner, Mark. 2011. Follow Your Nose? Smell, Smelling, and Their Histories. *American Historical Review* 116: 335–51. [\[CrossRef\]](#)
- Kallin, Hamish, and Tom Slater. 2014. Activating territorial stigma: Gentrifying marginality on Edinburgh's 'other' fringe. *Environment and Planning A* 46: 1351–68. [\[CrossRef\]](#)
- Li, Nan, Deland Chan, Quan Mao, Kevin Hsu, and Zhiyong Fu. 2018. Urban sustainability education: Challenges and pedagogical experiments. *Habitat International* 71: 70–80. [\[CrossRef\]](#)
- Lorr, Michael J. 2012. Defining Urban Sustainability in the Context of North American Cities. *Nature and Culture* 7: 16–30. [\[CrossRef\]](#)
- Massey, Doreen. 1994. *Space, Place and Gender*. Minneapolis: University of Minnesota Press.
- McIntyre, Zhan, and Kim McKee. 2012. Creating sustainable communities through tenure-mix: The responsabilisation of marginal homeowners in Scotland. *GeoJournal* 77: 235–47. [\[CrossRef\]](#)
- McKean, Charles. 2005. Twinning Cities: Modernisation versus Improvement. In *Edinburgh: The Making of a Capital City*. Edited by Brian Edwards and Paul Jenkins. Edinburgh: Edinburgh University Press, pp. 42–63.
- McKee, Kim, Jenny Muir, and Tom Moore. 2017. Housing policy in the UK: The importance of spatial nuance. *Housing Studies* 32: 60–72. [\[CrossRef\]](#)
- Mitchell, Don. 2008. New Axioms for Reading the Landscape: Paying Attention to Political Economy and Social Justice. In *Political Economies of Landscape Change*. Edited by James L. Wescoat and Douglas M. Johnston. Dordrecht: Springer, pp. 29–50.
- Mittler, Daniel. 1999. Environmental space and barriers to local sustainability: Evidence from Edinburgh, Scotland. *Local Environment* 4: 353–65. [\[CrossRef\]](#)
- Peterson, Tessa Hicks. 2009. Engaged Scholarship: Reflections and Research on the Pedagogy of Social Change. *Teaching in Higher Education* 14: 541–52. [\[CrossRef\]](#)
- Petrucchi, Mario. 2002. Sustainability—Long View or Long Word? *Social Justice* 29: 103–15.
- Reilly, Anne H., Mary Ann McGrath, and Kristine Reilly. 2016. Beyond 'Innocents Abroad': Reflecting on Sustainability Issues during International Study Trips. *Journal of Technology Management & Innovation* 11: 29–37.



- Richardson, Harry Ward, Joan Vipond, and Robert Furbey. 1975. *Housing and Urban Spatial Structure: A Case Study*. Surrey: Saxon House and Lexington Books.
- Sibley, Jim, and Peter Ostafichuk. 2014. *Getting Started with Team-Based Learning*. Sterling: Stylus.
- Smith, Neil. 1979. Geography, science and post-positivist modes of explanation. *Progress in Human Geography* 3: 356–83. [\[CrossRef\]](#)
- Smith, Neil. 1982. Gentrification and Uneven Development. *Economic Geography* 58: 139–55. [\[CrossRef\]](#)
- Smith, Neil. 2002. New Urbanism, New Globalism: Gentrification as global urban strategy. *Antipode* 34: 427–50. [\[CrossRef\]](#)
- Stevens, Dannelle D., and Joanne E. Cooper. 2009. *Journal Keeping: How to Use Reflective Writing for Learning, Teaching, Professional Insight, and Positive Change*. Sterling: Stylus.
- Sweet, Rosemary H. 2002. Topographies of Politeness. *Transactions of the Royal Historical Society* 12: 355–74. [\[CrossRef\]](#)
- Tarrant, Michael A., Donald L. Rubin, and Lee Stoner. 2014. The Added Value of Study Abroad: Fostering a Global Citizenry. *Journal of Studies in International Education* 18: 141–61. [\[CrossRef\]](#)
- Tarrant, Michael A., Donald L. Rubin, and Lee Stoner. 2015. The Effects of Studying Abroad and Studying Sustainability on Students' Global Perspectives. *Frontiers: The Interdisciplinary Journal of Study Abroad* 26: 68–82.
- University of Edinburgh. 2016. Delivering Impact for Society. Strategic Plan. Available online: [https://www.ed.ac.uk/files/atoms/files/strategic\\_plan\\_2016.pdf](https://www.ed.ac.uk/files/atoms/files/strategic_plan_2016.pdf) (accessed on 4 September 2019).
- Vandiver, Donna M., and Jeffrey A. Walsh. 2010. Assessing Autonomous Learning in Research Methods Courses: Implementing the Student-Driven Research Project. *Active Learning in Higher Education* 11: 31–42. [\[CrossRef\]](#)
- Wiek, Arnim, and Braden Kay. 2015. Learning while transforming: Solution-oriented learning for urban sustainability in Phoenix, Arizona. *Environmental Sustainability* 16: 29–36. [\[CrossRef\]](#)
- Williams, Tracy Rundstrom. 2005. Exploring the Impact of Study Abroad on Students' Intercultural Communication Skills: Adaptability and Sensitivity. *Journal of Studies in International Education* 9: 356–71. [\[CrossRef\]](#)
- Youngson, Alexander John. 1966. *The Making of Classical Edinburgh 1750–840*. Edinburgh: Edinburgh University Press.



© 2019 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).